THE MERSHON CENTER at The Ohio State University

Matt Jackson

Matt Jackson
Edie and Lew Wasserman Professor of Economics, California Institute of Technology

"On the Weights of Nations: Assigning Voting Weights in a Heterogeneous Union"
co-authored by Salvador Berbera

Friday, February 25, 2005

Economist Matthew Jackson insisted that direct democracy is the best way to access citizens' preferences, but that it is typically too costly for governments, which often turn to representatives to defray the high costs and act on behalf of a population. He proposed a model for assigning weights to representatives' votes that is "a second best" alternative to direct democracy. The model explores the effects of assigning weights to votes in order to find the most efficient vote allocation for a population whose preferences are potentially diverse and numerous, such as in the European Union (EU) or the United States. He asserted that the issue of allocating votes over heterogeneous preferences is especially salient given recent negotiations over the new constitution of the EU which assigns weights to the votes of representatives in the Council of Ministers.

He explained, "In any democratic union where the member countries, states, or districts comprising the union may be of different sizes and have different compositions in terms of citizens' preferences, it makes sense to weight the votes of the representatives."

The establishment of a voting rule for the European Council of Ministers illustrates the importance of considering various methods of weighting votes, Jackson said. In the Council, each EU member country receives one representative to vote on policies affecting the EU. Since the countries range in size from half a million to over 80 million it is necessary to consider how votes will be weighted in accordance with the countries' ideas of fair representation, he explained.

Jackson 's research addresses the question of fair representation by designing a voting rule that reflects citizens' preferences best. While a variety of different mechanisms already exist in theory and practice, as in the case of the EU, Jackson argues that they may not be the best ones for maximizing the overall welfare of a population. Many researchers and policymakers focus on the principal of equity when considering the weighting of votes, but he asserted that there are certain conditions under which proportional weights, often used in existing representative bodies, are not the best way to maximize citizens' preferences. He investigated utilitarian methods for weighting votes in order to capture citizens' preferences more optimally than assigning votes proportional to the size of the represented populations.

Using the logic of social choice theory, Jackson demonstrated that using proportional weights for a population in which the distribution of preferences is very diverse can result in the wrong decision more often that using less-than-proportional weights. Using less-than-proportional weighting has "fewer chances of being wrong," Jackson said.

In addition to vote weights, thresholds that establish the percentage of affirmative votes required for passage of a policy also determine the structure of a voting rule. According to Jackson , the higher the threshold the less favorable the voting rule is to policy change.

Jackson pointed to the Nice Treaty of 2000, which established the voting rule for the European Council of Ministers, as an example: the treaty required support of 74 percent of the votes cast to

pass. But, said Jackson , such a threshold highly favors the status quo, making passage difficult. In contrast, Jackson said, the Constitutional Convention of 2003, which proposed a threshold of 60 percent to pass, was less favorable to the status quo. The structure of the vote weighting and the threshold together determine the outcome of the vote.

A central part of Jackson 's theory asserts that every population can be subdivided into voting blocks. A large country may have a significantly heterogeneous population compared with a small country; therefore, the larger country would have a greater number of voting blocks. If this were the case, proportional weights better represent citizens' preferences in countries with highly heterogeneous voting blocks; however, if the number of voting blocks were the same across countries, the proportional weights model would fit best. According to Jackson , the pattern of citizens' preferences would determine the optimal set of weights.

Jackson tested his theory using data collected from Eurobarometer surveys, which is poll data collected from EU member states. He found that EU countries are relatively homogenous in terms of the number voting blocks and that the proportional representation system proposed by the European Constitution represents citizens' preferences better than the less-than-proportional voting structure of the Nice Treaty, which over represents some countries, while under representing others.

Jackson 's research used the example of the European Council, but he showed that the model can be applied to any organization or government divided into districts, states, or countries composed of varied populations and preferences.

In an ideal situation, taking referenda on all issues which concern citizens is the best way to realize preferences, but this method is too costly, says Jackson . Instead, policymakers can design democratic institutions to represent these preferences most optimally by better understanding the distribution of preferences among citizens. *--Autumn Lockwood Payton*

Precis: Consider a voting procedure where countries, states, or districts comprising a union each elect representatives who then participate in later votes at the union level on their behalf. The countries, provinces, and states may vary in their populations and composition. If we wish to maximize the total expected utility of all agents in the union, how to weight the votes of the representatives of the different countries, states or districts at the union level? We provide a simple characterization of the efficient voting rule in terms of the weights assigned to different districts and the voting threshold (how large a qualified majority is needed to induce change versus the status quo). Next, in the context of a model of the correlation structure of agents preferences, we analyze how voting weights relate to the population size of a country. We then analyze the voting weights in Council of the European Union under the Nice Treaty and the recently approved constitution, and contrast them under different versions of our model, and compare them to the weights derived from poll data. Click here to read the paper on which this talk was based.

Matthew Jackson received a Ph.D. from Stanford University in 1988 and a B.A. from Princeton University in 1984. He joined the faculty of Caltech in 1997.

Prior to 1997 he was on the faculty at Northwestern University from 1988 to 1997, holding the IBM Distinguished Chair in Competitive and Regulatory Policy in the department of Managerial Economics and Decision Sciences at Kellogg Graduate School of Management. He served as chairman of the department of Managerial Economics and Decision Sciences from 1995 to 1997, before coming to Caltech. His research interests include the theory of social and economic networks, market and auction design, mechanism design and implementation, social choice theory, and game theory.

Professor Jackson received the Social Choice and Welfare Prize in 2001-2002, awarded every two years to a scholar under 40 for distinguished accomplishment in social choice theory and welfare economics. He was elected as a Fellow of the Econometric Society in 1998, and has served on the editorial boards of *Econometrica, Games and Economic Behavior, the Journal of Economic Theory, the Journal of Public Economic Theory, Mathematical Social Sciences, the Review of Economic Design* , and *Social Choice and Welfare* , and edits the *Econometric Society Monograph Series* .

He is currently a member of the American Economic Association, the Center for Economic Design, the Econometric Society, the Society for the Promotion of Economic Theory, and a charter member of the Game Theory Society. He is on the councils of the Society for Social Choice and Welfare and the Game theory Society.

Synopsis:

Economist Matthew Jackson insisted that direct democracy is the best way to access citizens' preferences, but that it is too costly for governments, which often turn to representatives to defray the high costs and act on behalf of a population. He proposed a model for assigning weights to representatives' votes that is “a second best” alternative to direct democracy. The model explores the effects of assigning weights to votes in order to find the most efficient vote allocation for a population whose preferences are potentially diverse and numerous, such as in the European Union (EU) or the United States. He asserted that the issue of allocating

votes over heterogeneous preferences is especially salient given recent negotiations over the new constitution of the EU which assigns weights to the votes of representatives in the Council of Ministers.

He explained, "In any democratic union where the member countries, states, or districts comprising the union may be of different sizes and have different compositions in terms of citizens' preferences, it makes sense to weight the votes of the representatives."

The establishment of a voting rule for the European Council of Ministers illustrates the importance of considering various methods of weighting votes, Jackson said. In the Council, each EU member country receives one representative to vote on policies affecting the EU. Since the countries range in size from half a million to over 80 million it is necessary to consider how votes will be weighted in accordance with the countries' ideas of fair representation, he explained.

Jackson 's research addresses the question of fair representation by designing a voting rule that reflects citizens' preferences best. While a variety of different mechanisms already exist in theory and practice, as in the case of the EU, Jackson argues that they may not be the best ones for maximizing the overall welfare of a population. Many researchers and policymakers focus on the principal of equity when considering the weighting of votes, but he asserted that there are certain conditions under which proportional weights, often used in existing representative bodies, are not the best way to maximize citizens' preferences. He investigated utilitarian methods for weighting votes in order to capture citizens' preferences more optimally than assigning votes proportional to the size of the represented populations.

Using the logic of social choice theory, Jackson demonstrated that using proportional weights for a population in which the distribution of preferences is very diverse can result in the wrong decision more often that using less-than-proportional weights. Using less-than-proportional weighting has "fewer chances of being wrong," Jackson said.

In addition to vote weights, thresholds that establish the percentage of affirmative votes required for passage of a policy also determine the structure of a voting rule. According to Jackson , the higher the threshold the less favorable the voting rule is to policy change.

Jackson pointed to the Nice Treaty of 2000, which established the voting rule for the European Council of Ministers, as an example: the treaty required support of 74 percent of the votes cast to pass. But, said Jackson , such a threshold highly favors the status quo, making passage difficult. In contrast, Jackson said, the Constitutional Convention of 2003, which proposed a threshold of 60 percent to pass, was less favorable to the status quo. Together, the structure of the vote weighting and the threshold, determine the outcome of the vote.

A central part of Jackson 's theory asserts that every population can be subdivided into voting blocks. A large country may have a significantly heterogeneous population compared with a small country; therefore, the larger country would have a greater number of voting blocks. If this were the case, proportional weights better represent citizens' preferences in countries with highly heterogeneous voting blocks; however, if the number of voting blocks were the same across countries, the proportional weights model would fit best. According to Jackson , the pattern of citizens' preferences would determine the optimal set of weights.

Jackson tested his theory using data collected from Eurobarometer surveys, which is poll data collected from EU member states. He found that EU countries are relatively homogenous in terms of the number voting blocks and that the proportional representation system proposed by the European Constitution represents citizens' preferences better than the less-than-proportional voting structure of the Nice Treaty, which over represents some countries, while under representing others.

Jackson 's research used the example of the European Council, but he showed that the model can be applied to any organization or government divided into districts, states, or countries composed of varied populations and preferences.

In an ideal situation, taking referenda on all issues which concern citizens is the best way to realize preferences, but this method is too costly, says Jackson . Instead, policymakers can design democratic institutions to represent these preferences most optimally by better understanding the distribution of preferences among citizens.